IN THE UNITED STATES PATENT & TRADEMARK OFFICE

In re Application of: :

Applicants: Raj Bridgelall   :   Group Art Unit: Unassigned

Serial No.:   Unassigned   :   Examiner: Unassigned

Filed: December 14, 2001   :

For: AUTOMATIC AND SEAMLESS VERTICAL ROAMING BETWEEN
               WIRELESS LOCAL AREA NETWORK (WLAN) AND WIRELESS WIDE
               AREA NETWORK (WWAN) WHILE MAINTAINING AN ACTIVE VOICE
               OR STREAMING DATA CONNECTION: SYSTEMS, METHODS AND
               PROGRAM PRODUCTS

BOX PATENT APPLICATIONS
Commissioner of Patents
Washington, D.C. 20231

PRELIMINARY AMENDMENT

Sir:

Please replace the designated portions of the above-identified application prior to

examination in order to correct minor informalities as follows:

IN THE SPECIFICATION:

Page 29, third paragraph, which begins at line 17 and continues to page 20 lines 1-5,

replace as follows:

In the case of processes 1200 and 1300 where more than one network is available, an

application/user can switch or roam to a specific network based on knowledge of the network

physical location. The physical location may be determined by an integrated GPS or Real Time

Location System (RTLS). Examples of Real Time Location Systems are those using signal

strength, time difference of arrival or angle of arrival estimates and triangulation methods from

the very RF signals that constitute the various wireless networks. Other methods of network

location include RFID and Infra-Red emitter location markers. Application Serial No. 09/986,054, filed November 7, 2001, Symbol Docket 1186, entitled "*Three-Dimensional (3-D) Object Locator System, Using an Intuitive Sound Beacon: System and Method of Operation*", assigned to the same assignee as that of the present invention and fully incorporated herein by reference describes an example of an RTLS system using angle of arrival estimates and triangulation for determining a position of an object.

IN THE CLAIMS:

Please REPLACE claims 13-18 and 20-23 as follows:

13. (Amended) The method of Claims 11 or 12 further comprising:

   (g) initiating transfer of traffic between the mobile station and a remote user via the WWAN to the WLAN when the mobile station enters the WLAN area.

14. (Amended) The method of Claims 11 or 12 further comprising:

   (h) switching a dual mode radio between the WWAN and the WLAN and vice versa as a user travels between the networks.

15. (Amended) The method of Claims 11 or 12 further comprising:

   (i) providing an Explicit Call Transfer (ECT) function for SVR switching between WLAN/WWAN networks when a user roams in the networks.

16.   (Amended) The method of Claims 11 or 12 further comprising:

(j)   interleaving WLAN signaling in vacant GSM/GPRS traffic slots.

17.   (Amended) The method of Claims11 or 12 further comprising:

(k)   interleaving WLAN/WWAN voice/data traffic in vacant GSM/GPRS

signaling slots.

18.   (Amended) The method of Claims 11 or 12 further comprising:

(l)   linking a dual mode radio API with a GSM/GPRS protocol stack and a

WLAN IEEE 802.11 protocol stack for SVR between WWAN and

WLAN and vice versa.

20.   (Amended) The method of Claims 11 or 12 further comprising:

transform random packet arrival times into uniformly spaced streaming data using a jitter

buffer.

21.   (Amended) The method of Claims 11 or 12 further comprising:

maintaining a connection between parties on the WWAN and the WLAN when

transferring from WWAN to the WLAN and vice versa.

22.   (Amended) A medium, executable in a computer system for automatic and seamless

vertical roaming between a wireless local area network (WLAN) and a wireless wide area

network (WWAN) while maintaining an active voice or data connection comprising:

(a)   program instructions issuing a command to the WWAN by a mobile station including a dual mode Radio capable of WWAN and WLAN transmission, the command initiating transfer of a voice or data call on the WWAN to a remote party on the WLAN;

(b)   program instructions checking whether or not a gateway is linked to the dual mode Radio for WLAN transmissions while maintaining the call between the remote party and the mobile station;

(c)   program instructions verifying by the dual mode Radio that the caller identification is from a WWAN transmission and signaling the WLAN gateway to accept the call;

(d)   program instructions storing the packets at the mobile station while waiting for the establishment of a WLAN connection;

(e)   program instructions dropping the WWAN transmission for the call by the WWAN network; and

(f)   program instructions connecting the caller via the gateway and releasing the stored packets. to the dual mode Radio for WLAN transmission.

23.   (Amended) A medium, executable in a computer system for automatic and seamless vertical roaming between a wireless local area network (WLAN) and a wireless wide area network (WWAN) while maintaining an active voice or data connection comprising:

(a)   program instructions issuing a command to the gateway by a mobile station

including a dual mode Radio capable of WWAN and WLAN transmission, the

command initiating transfer of a VoIP call or data communications on the WLAN

to a remote party on the WWAN;

(b)   program instructions checking by the WWAN network whether or not the dual

mode Radio for WWAN transmissions is registered to the WWAN network while

maintaining the call between the remote party and the mobile station;

(c)   program instructions verifying by the dual mode Radio that the caller

identification is from a WLAN transmission and signaling the WWAN network to

accept the call;

(d)   program instructions storing the packets at the mobile station while waiting for

the establishment of the WWAN connection;

(e)   program instructions dropping the WLAN transmission for the call by the WLAN

network; and

(f)   program instructions connecting the caller to the mobile station via the WWAN

network and releasing the stored packets to the dual mode Radio for WWAN

transmissions.

REMARKS

The above-identified changes are requested prior to examination in order to correct minor

informalities. No new matter has been introduced. In compliance with 37 C.F.R. § 1.121,

Attachment A, showing a mark-up version of the changes made to the specification and claims

by the current Amendment is attached hereto.

AUTHORIZATION:

The Commissioner is hereby authorized to charge any additional fees which may be

required for the timely consideration of this amendment under 37 C.F.R. §§ 1.16 and 1.17, or

credit any overpayment to IBM Corporation's Deposit Account No. <u>13-4503</u>, Order No. <u>2301-</u>

<u>4016</u>.

Respectfully submitted,
MORGAN & FINNEGAN, L.L.P.

Dated: <u>December 14, 2001</u>   By: *Joseph C. Redmond, Jr.*
                                                     Joseph C. Redmond, Jr.
                                                     Registration No. 18,753
                                                     202-857-7887 – Telephone
                                                     202-857-7929 – Facsimile

CORRESPONDENCE ADDRESS:
Morgan & Finnegan L.L.P.
345 Park Avenue
New York, New York 10154

IN THE UNITED STATES PATENT & TRADEMARK OFFICE

In re Application of: :

Applicants: Raj Bridgelall   :   Group Art Unit: Unassigned

Serial No.:   Unassigned   :   Examiner: Unassigned

Filed: December 14, 2001   :

For: AUTOMATIC AND SEAMLESS VERTICAL ROAMING BETWEEN
                WIRELESS LOCAL AREA NETWORK (WLAN) AND WIRELESS WIDE
                AREA NETWORK (WWAN) WHILE MAINTAINING AN ACTIVE VOICE
                OR STREAMING DATA CONNECTION: SYSTEMS, METHODS AND
                PROGRAM PRODUCTS

BOX PATENT APPLICATIONS
Commissioner of Patents
Washington, D.C. 20231

<u>ATTACHMENT A – SHOWING MARK-UP OF CHANGES</u>

Sir:

<u>IN THE SPECIFICATION:</u>

Page 29, third paragraph, which begins at line 17 and continues to page 20 lines 1-5, has

been AMENDED as follows:

In the case of processes 1200 and 1300 where more than one network is available, an

application/user can switch or roam to a specific network based on knowledge of the network

physical location. The physical location may be determined by an integrated GPS or Real Time

Location System (RTLS). Examples of Real Time Location Systems are those using signal

strength, time difference of arrival or angle of arrival estimates and triangulation methods from

the very RF signals that constitute the various wireless networks. Other methods of network

location include RFID and Infra-Red emitter location markers. **<u>Application Serial No.</u>**

<u>09/986,054, filed November 7, 2001</u>, Symbol Docket 1186, entitled *"Three-Dimensional (3-D)*

Object Locator System, Using an Intuitive Sound Beacon: System and Method of Operation",

assigned to the same assignee as that of the present invention and fully incorporated herein by

reference describes an example of an RTLS system using angle of arrival estimates and

triangulation for determining a position of an object.

IN THE CLAIMS:

Claims 13-18 and 20-23 have been AMENDED as follows:

13.   (AMENDED) The method of Claims 11 **[and] or** 12 further comprising:

        (g)   initiating transfer of traffic between the mobile station and a remote user

              via the WWAN to the WLAN when the mobile station enters the WLAN

              area.

14.   (AMENDED) The method of Claims 11 **[and] or** 12 further comprising:

        (h)   switching a dual mode radio between the WWAN and the WLAN and vice

              versa as a user travels between the networks.

15.   (AMENDED) The method of Claims 11 **[and] or** 12 further comprising:

        (i)   providing an Explicit Call Transfer (ECT) function for SVR switching

              between WLAN/WWAN networks when a user roams in the networks.

16.   (AMENDED) The method of Claims 11 **[and] or** 12 further comprising:

        (j)   interleaving WLAN signaling in vacant GSM/GPRS traffic slots.

17.   (AMENDED) The method of Claims 11 **[and]** <u>or</u> 12 further comprising:

(k)   interleaving WLAN/WWAN voice/data traffic in vacant GSM/GPRS

signaling slots.

18.   (AMENDED) The method of Claims 11 **[and]** <u>or</u> 12 further comprising:

(l)   linking a dual mode radio API with a GSM/GPRS protocol stack and a

WLAN IEEE 802.11 protocol stack for SVR between WWAN and

WLAN and vice versa.

20.   (AMENDED) The method of Claims 11 **[and]** <u>or</u> 12 further comprising:

transform random packet arrival times into uniformly spaced streaming data using a jitter

buffer.

21.   (AMENDED) The method of Claims 11 **[and]** <u>or</u> 12 further comprising:

maintaining a connection between parties on the WWAN and the WLAN when

transferring from WWAN to the WLAN and vice versa.

[23] <u>22</u>.   A medium, executable in a computer system for automatic and seamless vertical

roaming between a wireless local area network (WLAN) and a wireless wide area network

(WWAN) while maintaining an active voice or data connection comprising:

(a)   program instructions issuing a command to the WWAN by a mobile

station including a dual mode Radio capable of WWAN and WLAN

transmission, the command initiating transfer of a voice or data call on the

WWAN to a remote party on the WLAN;

(b)   program instructions checking whether or not a gateway is linked to the

dual mode Radio for WLAN transmissions while maintaining the call

between the remote party and the mobile station;

(c)   program instructions verifying by the dual mode Radio that the caller

identification is from a WWAN transmission and signaling the WLAN

gateway to accept the call;

(d)   program instructions storing the packets at the mobile station while

waiting for the establishment of a WLAN connection;

(e)   program instructions dropping the WWAN transmission for the call by the

WWAN network; and

(f)   program instructions connecting the caller via the gateway and releasing

the stored packets. to the dual mode Radio for WLAN transmission.

[24] 23.   A medium, executable in a computer system for automatic and seamless vertical

roaming between a wireless local area network (WLAN) and a wireless wide area network

(WWAN) while maintaining an active voice or data connection comprising:

(a)   program instructions issuing a command to the gateway by a mobile station

including a dual mode Radio capable of WWAN and WLAN transmission, the

command initiating transfer of a VoIP call or data communications on the WLAN

to a remote party on the WWAN;

(b)   program instructions checking by the WWAN network whether or not the dual

mode Radio for WWAN transmissions is registered to the WWAN network while

maintaining the call between the remote party and the mobile station;

(c)   program instructions verifying by the dual mode Radio that the caller

identification is from a WLAN transmission and signaling the WWAN network to

accept the call;

(d)   program instructions storing the packets at the mobile station while waiting for

the establishment of the WWAN connection;

(e)   program instructions dropping the WLAN transmission for the call by the WLAN

network; and

(f)   program instructions connecting the caller to the mobile station via the WWAN

network and releasing the stored packets to the dual mode Radio for WWAN

transmissions.